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ABSTRACT

A plan to establish an environmental scanning and forecasting system for colleges and universities is discussed as a way to maximize long-range planning. After proposing a program structure, attention is directed to methods of gaining organizational acceptance, developing a comprehensive taxonomy with an electronic filing system, identifying and assigning information resources, securing scanners, and training scanners and abstracters. Brief descriptions are included of activities involving the scanning committees, including conduct of meetings, training committee members in forecasting techniques, developing the scanning newsletter, and writing issue briefs. The primary purpose of an environmental scanning and forecasting system is to identify and analyze trends in order to uncover emerging issues that may affect the ability of colleges to perform their missions. The desired result would also be to provide the college's senior management with complete, objective, and detailed information about the external environment to help anticipate what is happening in the state, region, and nation. In support of the college's strategic planning process, the scanning committee would analyze and evaluate scanning abstracts on a monthly or bimonthly basis. (SW)

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ESTABLISHING AN ENVIRONMENTAL SCANNING SYSTEM TO AUGMENT COLLEGE AND UNIVERSITY PLANNING

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ESTABLISHING AN ENVIRONMENTAL SCANNING SYSTEM TO AUGMENT COLLEGE AND UNIVERSITY PLANNING

College and university long-range planning models are typically based upon the concept that planning consists of responding to the following questions:

- What is the current environment?
- What future changes in the environment might be anticipated?
- What position does the organization wish to attain in the future environment?
- What actions are necessary to better achieve the desired position?

In the context of planning, these questions translate to:

- Monitoring
- Forecasting
- Goal Setting
- Implementing

The long-range planning cycle begins by monitoring selected trends of interest to the organization, forecasting the future of those trends (usually based upon extrapolation from historical data using regression or other techniques), setting organizational goals in response to these forecasts, implementing operational plans based upon these goals, and monitoring the effects of these plans on those selected trends and issues (see Figure I).

Planners must necessarily select an agreed planning horizon, be it 5, 10 or 15 years. Whatever horizon is selected, it is essential that the planning process be viewed as a dynamic one that is periodically readjusted based upon best available information. In other words, the best information available is never "perfect" information and, therefore, the long-range research plan is refined and adjusted as better information becomes available. Of course, this process will not obviate the

uncertainty inherent in the future course of actual events. However, it will enable managers to feel more comfortable and proceed more effectively in dealing with that uncertainty and its associated risks. The planning *process* is therefore just as important as the resultant plan.

An alternative planning model has emerged from the corporate world called the environmental scanning model. The first stage of this model, monitoring, requires scanning the external environment for emerging trends and issues which pose threats or opportunities to the organization. Each potential issue is then analyzed in the evaluating/ranking stage as to the likelihood that it will emerge and the nature and degree of its impact on the organization if it does emerge, or, in certain cases, does not emerge. This stage produces a rank ordering of the trends and issues according to their importance to current or planned operations. The next stage, forecasting, focuses on developing an understanding of the likely future for the most important trends and issues. In this stage, any of the modern forecasting techniques may be used. Once the forecasts are made, each of the trends and issues are monitored for their continued relevance and for the accuracy of the forecasts made in the preceding stage. (See Figure 2)

One of the major limitations of the traditional long-range planning model is the lack of systematic inclusion of information about the changing external environment. Without this information, the long-range planning process is locked in the present due to an assumption that since we cannot predict changes in the external environment, we must base our planning on information we know from the past and immediate present.

However, information from the external environment adds important components to the long-range planning process. First, it identifies new trends that should be added to those identified in the monitoring stage of the long-range planning model. Second, it identifies potential events which must be used to modify the forecasts of the internal issues derived from the monitoring stage. Specifically, these are the surprise events that are used in trend impact analysis, policy impact analysis, and probabilistic systems dynamics, as well as other rigorous forecasting methods used in the traditional long-range planning process. (See Morrison, Renfro, and Boucher, 1984, for an

explanation of these methods.)

The argument of this paper, therefore, is that given a commitment to the long-range planning model, merging this model with the environmental scanning model should enhance the overall effectiveness of college and university planning. That is, by establishing an environmental scanning and forecasting system, colleges and universities will have an early warning system to identify trends and events that when forecasted, present both threats and opportunities. With early warning, administrators can prepare their response options in anticipation of changes implied by these trends and events. Therefore, an environmental scanning and forecasting program will increase management efficiency in dealing with uncertainties inherent in the future by anticipating change and influencing the future rather than simply reacting to it. More specifically, the primary purpose of an environmental scanning system is to identify and analyze trends in order to identify emerging issues which may affect the ability of colleges and universities to perform their missions. The remainder of this paper will focus, then, on those steps which a college or university could take to establish an environmental scanning system.

We begin by proposing a program structure, and methods of gaining organizational acceptance, developing a comprehensive taxonomy with an electronic filing system, identifying and assigning information resources, securing scanners, and training scanners and abstracters. We conclude by briefly describing activities involving the scanning committee, including conduct of meetings, training committee members in forecasting techniques, developing the scanning newsletter, and writing issue briefs.

Program Structure

The initial structure of the program could be quite simple. The scanning committee chair could be one of a number of people, i.e., the assistant to the president for planning, the executive assistant to the president, or the director of institutional research. In any event, all of these individuals should be involved because of the relationship of the scanning program to planning. The director of institutional research

in particular should be involved because the institutional research office is an appropriate repository of the hard copy data collected in the process. This would be in keeping with a national trend where IR offices are becoming responsible for collecting external environment data as well as internal data. The committee itself should include at least one senior level administrator representing each of the major functional areas of the college (e.g., student affairs, business, development, and administration) and faculty members/departmental chairs from sociology, political science, economics, computer science, etc.

The primary role of a scanning committee is to conduct analyses and evaluations of scanning abstracts on a monthly or bimonthly basis. Thus, scanning committee would perform the initial "cut" of the information provided by scanners, i.e., they would evaluate abstracts, identify the trends and events they consider of the most import to the university's strategic planning process, and submit this analysis to the committee which makes recommendations directly to the President for implementation.

It is estimated that after the system is operating, the chair would spend half to three-quarters of his/her time managing and coordinating this activity. Members of the scanning committee would spend two to four days a month in committee activities. Scanners would probably spend an additional four to eight hours per month writing abstracts. (This assumes a broad base of scanners assigned only one or two information resources.) The latter estimate does not include, of course, the time they would actually spend in scanning. An alternative to scanners writing abstracts (see below for the requirements of writing abstracts) would be employing one or two part-time graduate assistants to write abstracts of materials submitted by scanners. This alternative has the advantage of encouraging the submission of material (which may be inhibited if the scanner is required to write abstracts) but it also has the disadvantage of not having senior level people submitting impact assessments of the information they send to the IR office. It is recommended, therefore, that scanners be given an option of writing abstracts or of submitting material directly.

Gaining Organizational Acceptance

One approach to describe the program and gain organizational acceptance/endorsement throughout the institution, is to offer a series of half-day workshops for each functional unit of the institution (open to all or by invitation only) which would focus on the future, ways of studying the future, and techniques of environmental scanning. These workshops would enable participants to experience the value of bringing their individual knowledge of the external environment to organizational knowledge in a structured and intuitively sound fashion and should result in volunteers to participate as scanners in the environmental scanning program. Moreover, the workshops often produce a good "first cut" at those trends and events which can serve as the basis for the environmental scanning taxonomy. Tables I and 2 illustrate the kinds of trends and events identified in a workshop held with the University of Alabama Planning Council in February, 1986.

An alternative approach would be to place a "call for scanners" in the institutional newsletter. This "call" would describe the environmental scanning process, how it fits into the institution's strategic planning process, and the responsibilities of scanners. Volunteers would then participate in a workshop. The advantage of this alternative is that it would not require a workshop in every unit of the college, and, therefore, would facilitate getting started.

Developing the Scanning Taxonomy

The workshops could be accompanied by an "internal scan" of senior administrators, including academic department chairs, focussing on the question: "What trends, events, and emerging issues in American and global society do you see which have implications for our institution?" Another approach would be to ask respondents, "What are the critical success factors inherent in accomplishing our mission? and second, "What trends, events, and emerging issues in our society do you see that will affect these critical success factors?" This scan can be done through a one-on-one interview lasting one to two hours.

In addition to the information acquired in the workshops and the individual interviews, a review of literature to identify previous scans of trends and events which

have implications for the institution could be conducted. For example, reference librarians could do a computer search of trends collected by a variety of agencies (Federal and otherwise), as well as a literature search for articles focussing on the future of careers, technology, etc.

It is important at this point to emphasize that the trends and events identified through workshops, interviews, and literature reviews, must be translated in order to provide direction for the environmental monitoring data base. That is, trends and events must be stated clearly, and in measurable terms in order to guide data collection. For example, a trend may be conceptualized as, "the changing student body profile," but data cannot be collected to measure this trend unless it is stated something like, "the number of full-time students over 35." Tables 4 and 5 provide examples of how the trends and events conceptualized in the workshop at the University of Alabama may be restated so that data can be collected, if it turns out that these are the critical trends and events for the university as determined by the strategic planning committee.

The results of this activity should constitute the rough draft of a scanning taxonomy. This draft can be supplemented with adopting or modifying taxonomies used by other institutions, e.g., the University of Georgia's Center for Continuing Education (see Figure 3). It may take a year or so of experience before the taxonomy would become relatively stable and sufficiently comprehensive. It is important to develop a comprehensive taxonomy, however, in order to use an electronic filing system.

Organize the Files Electronically

Electronic files facilitate review, referral and updating. Moreover, through using an electronic filing system, it will be easier to develop consortium relationships with similar institutions or with institutions in the same geographic area. Such a consortium could easily enrich the data base of abstracts. One electronic system that should be investigated is the one used by United Way, Prudential, and United Airlines (Mist Plus,

a software program produced and marketed by Micro-Computer Information Support Tools, New Era Technologies Incorporated, 2025 Eye Street, N.W., Suite 924, Washington, D.C. 20006, phone 202 296-6277). The scanning program at the University of Minnesota uses dBase II. Given the computer support system available at most institutions, it is recommended that the specific filing system be developed from existing commercial software (dBase II, Lotus 1-2-3, etc.) and implemented at the institutional computing center.

Identify Literature Sources and Data Bases

Information sources include newspapers, magazines, journals, TV and radio programs, conferences, etc. The important criterion is diversity. For example, it would be important to include major newspapers representing different parts of the country, e.g., The New York Times, The Wall Street Journal, The Miami Herald, The Chicago Tribune, The Los Angeles Times, The Christian Science Monitor, and USA Today. The Chronicle of Higher Education and Education Week focus on education. There are a number of magazines/journals which provide good scanning information in a variety of areas. For example, in the social/demographic area, there are American Demographics and Public Opinion. In the technological sector, there are High Technology, Datamation, BYTE, Computer World, Discover, and Information World. In the economic sector, there are Business Week, The Economist, Fortune, Forbes, Money, Inc., and the Monthly Labor Review. In the political sector there are New Republic, The National Review, The National Journal, and Mother Jones. Maganzines and journals that spread across these sectors include Vital Speeches of the Day, Across the Board, Naisbet Trend Letter, Kiplinger Washington Letter, Time, Newsweek, U.S. News and World Report, and The Futurist. Morrison, Renfro, and Boucher (1984) identify a number of other information resources, including those used by the ACLI Trend Analysis Program and the ERIC Clearinghouse on Higher Education.

In addition to those resources commercially available, a nmber of government agencies publish trend data, many times at no or little cost. For example, GAO Reports may be obtained from the U.S. General Accounting Office, Document Handling and

Information Services Facility, P. O. Box 6015, Gaithersburg, MD 20877, phone 202 275-6241. NCES reports are available from NCES, Washington, D.C. Periodic Rand reports may be obtained from The Rand Corporation, Publications Department, 1700 Main Street, P.O. Box 2138, Santa Monica, CA 90406-2138.

Assign Scanners Information Resources

Assigning scanners specific materials for regular review and analysis provides a measure of confidence that most "blips" on the radar screen will be spotted. A suggested procedure of assigning information resources is first to ascertain what materials, conferences etc., are regularly read or attended by scanners. The list of material regularly read by scanners should be compared to the list of important information resources identified above. If at all possible, scanners should be assigned material which they already regularly review. It is likely that there will be material which is not regularly read; in such cases, it is recommended that scanners be asked to volunteer to read those resources. Moreover, the scanning committee chair should institute a procedure to "spot check" how well the information resources are being reviewed. If there are many scanners, it is advisable to build in redundancy, i.e., have two scanners for the same information resource.

Train Scanners

Scanners need orientation and training in scanning and reporting information from these materials via abstracts. That is, scanners should keep in mind that they are scanning to anticipate social, economic, technological and legislative/regulatory changes in order to facilitate planning and policy formulation. Therefore, they should seek signals that indicate departures from expected futures. Specifically, when scanning their assigned materials, they should ask themselves if the items:

1. represent events, trends, developments, or ideas never before encountered?
2. contradict previous assumptions or beliefs about what seems to be happening?

3. represent new twists to old arguments?
4. can be linked to other abstracts previously written or seen?
5. discuss new patents, inventions, and/or research results?
6. have implications for the long-range program or management of the institution?
7. contain polls or forecasts?

Train Abstracters

It is ideal if scanners would also serve as abstracters. However, as noted above, it may be that one or two graduate assistants would have to be employed for this task. Irrespective who does the abstracting, however, it is recommended that all scanners and IR staff personnel be trained to write abstracts.

The lead sentence of an abstract should be a response to this question: "If I had only a few minutes to describe this article to a friend, what would I say?" What is the most important idea or event that indicates change? The response to this question should be followed by a one paragraph explanation. Whenever possible, statistical data should be included. The summary should be limited to no more than one-half page of single-spaced, typewritten copy.

Each abstract should have an implications section responding to the question, "How will the information in this article affect this institution's programs or management?" The author should include a list of those emerging issues suggested by the article, a description of future events occurring as a result of the trend identified by the article, and/or an identification of issue stakeholders if they are not listed in the article.

Speculation about implications is a part of the scanning and abstracting process. Here the abstracter tries to determine an item's potential for affecting other facets of the social environment and/or the institution. There are no "right" answers. Note, however, that some articles may offer no implications that are immediately apparent. The scanning committee, with the benefit of related abstracts from other scanners, may be able to detect implications that a single monitor cannot.

Train Scanning Committee Members in Forecasting Techniques

There are a variety of techniques useful in evaluating and forecasting trends, events, and emerging issues. Probability impact charts, for example, are useful as decision aids as to which trends, events, and emerging issues are most important for the planning committee to consider in planning for the future. That is, they are designed to address the question as to the probability that a given event will occur during a specified future period, and, if it occurs, the extent of its positive and its negative impact on the institution. Those events with high impact, particularly when coupled with high uncertainty, may be further evaluated with the use of impact networks. (See Morrison et. al., 1984, for a description of these approaches.) These techniques may be learned in a one-half day workshop. (See Morrison and Cope, 1985, for a description of such a workshop.)

Conducting Scanning Committee Meetings

There are several approaches that could be used to prepare for a scanning committee meeting. For example, the chair could segregate abstracts according to subject area, e.g., all those concerning office automation go into one pile, employee compensation go into another, and those difficult to assign into a miscellaneous pile. Each member of the committee is then assigned a particular packet of abstracts to review in detail. All members read the entire selection of abstracts received, but are requested to come to the meeting with a list of trends and potential issues derived from those abstracts in their packet that are new. They should examine how these trends and issues related to or conflict with other trend areas identified previously. The meeting itself may last from two to three hours; a round robin with each person reporting his/her subject area followed by a free-for-all discussion. The end result of this meeting should be a list and brief description of 15 or so trends, possible events, and emerging issues which the committee recommends to the planning council as important to consider in institutional planning.

Scanning Newsletter

The initial activities of this committee, however, can be focussed on identifying those items which should be included in the institution's scanning newsletter. One approach is for each member to review the scanning abstracts and come to the meeting prepared to sort them into three categories: "winners," "losers," and "middle-of-the-roaders." This committee should decide which items to publish. The newsletter, whether stand alone or insert, should have a logo, be "jazzy," printed on colored paper, and have special boxes labeled, "Wild Speculations." The important point is to avoid anointing speculations, but recognize that the purpose of the newsletter is to print items which have implications for the institution. Moreover, it is important to publically acknowledge the contribution of those scanners who contributed the particular items.

Issue Briefs

After reviewing many abstracts, the scanning committee will be able to identify those 15-25 or so trends, events, and emerging issues that are most important to monitor. This information should go to the University Planning Council. The Council may wish to commission issue briefs, written either by a member of the Council, the scanning committee, an administrative staffer, a staff member in the IR office, or a faculty member. A recommended format for an issue brief is:

- What is the issue?
- What do we know about it?
- What are the implications?
- What should the organization do?

Conclusion

The purpose of an environmental scanning and forecasting system is to provide complete, objective, and detailed information about the external environment to the senior management of the institution. This analysis is essential in managing the institution's interactions with its many outside environments. It is imperative that we

develop the capacity to anticipate what is happening in our state, region, nation, and world that will affect the nature and quality of the institution and its educational programs. Establishing an environmental scanning and forecasting system is a major step in developing this capacity.

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Table I: Trends Identified in Workshop

1. Slow Growth in Manufacturing Industries (Capital Development)
2. Changing Labor Market
   a: increasing minority population
   b: increasingly unskilled labor less competitive with foreign work forces
3. Proliferation of Research Universities Relative to Federal Support
4. Slower Job Growth Relative to Other Sun Belt States
5. Increased Competition for Most Capable Students
6. Fewer and Less Able Individuals Entering Teaching
7. Increasing Numbers of Nontraditional Students
8. Shifting Political Strengths Relative to Educational Support
9. Fewer Minority Students Enrolling at UA
10. Increasing 'Careerism' in Students
11. Fundamental Change in Job Types
    a: less labor intensive
    b: more service oriented
12. Decreasing Availability of Financial Aid
13. Increasing Numbers of Students From Nontraditional Families
14. Increasing Numbers of New Faculty Requiring Professional Job Opportunity for Spouse or Friend
15. Changing Roles of Urban Institutions
16. Increase in Dual Earner Families
17. Relative Stagnation of Population Growth in Alabama
18. Increased Relationship to Industry
19. Decline in Manufacturing and Heavy Industry Jobs in Alabama
20. Growth of Urban Universities
21. Increasing conservatism in politics and religion
22. Increased Community College/Technical School Enrollments
23. Shifts in Undergraduate Fields of Study
24. Regional Focus of Higher Education Service Units
25. Decrease in Proportion of Resources Committed to Teaching
26. Increasing Faculty Shortages in Selected Areas
27. Increasing Conflict Between and Among UA Divisions
28. Increasing Number of Alabamans Retiring Back Home
29. Increasing Number of Female Graduate and Undergraduate Students
30. Increasing Number of Older Students Who Work
31. Decreasing Number of Minorities in Higher Education
32. Increasing Number of Foreign Students
33. Increased Interest in Maintaining Personal Health
34. Unstable Educational Funding (Federal, State, Private) in Alabama
35. Change in Nature of People Going Into Politics
36. Move from Blue-Collar State to "something"

37. Leveling off of Population Growth in Alabama
38. Increasing Population Growth in Some Neighboring States
39. Increasing Proportion of Alabama Population is Minority
40. Decreasing Population in Tuscaloosa
41. Decreasing Federal Funds for Student Aid
42. Increasing Numbers of Out-of-State Students
43. Decreasing Numbers of Students in Business Schools
44. Increasing Numbers of Women in Business Schools
45. Increasing Numbers of Women Entering Graduate School
46. Increasing Competition
    a. for students
    b. for financial support
47. Increasing Intrusion of Federal Courts in Higher Education.
48. Increasing Movement of UA Toward General Education.
49. Increasing Unrealistic Expectations of Faculty
50. Faculty Profile Changes
51. Increasing Intrusions on Educational Decisions Corresponding to Increasing Private Donations
52. "Developing Nation" Status of Counties Surrounding UA
53. Increasing Cost of
    a. energy
    b. economic development
54. Increasing Number of
    a. low paying service jobs
    b. information processing jobs
55. Increasing Shortage of High School Science and Math Teachers
56. Greater Demand for
    a. foreign languages
    b. English as a second language.
57. Increasing High School Dropout Rate
58. Changes Family Profiles
59. Emergence of Great Family Fortunes
60. Increasing Faculty Salaries
61. Socio-Economic Indicators Increasing
62. Increasing Emphasis on Graduate Programs
    a: increasing numbers assistantships
    b: increasing recruitment efforts
    c: increasing level of stipends
63. Increasing Tuitions
64. Increasing Computer Laboratory Fees
65. Decreasing Enrollment
66. Increasing Inflationary Pressures

TABLE 2: EVENTS IDENTIFIED IN WORKSHOP

1. New Govenor Elected
2. State Appropriations for 85-86 Reduced
3. State Appropriations for 86-87 < 85-86
4. Title VI Decision
   a: merges institution
   b: new grad. programs in traditional black institution
   c: shift programs from one institution to another institution
5. Moratorium on New Programs
6. Enhancement of College of Continuing Studies Facilities
7. New Building Program
   a: Music
   b: Min. Sci.
   c: Bidgood addition
   d: Hotel
   e: Bryant Museum
8. Changes in Certification Requirements for Teachers
9. Increased Admission Standards
10. More Stringent Academic Progress Standards
11. Strengthening of Core Curriculum
12. New Accreditation Standards
    a: Nursing
    b: C&BA (changing)
    c: Engineering (changing)
13. Univ. Industrial Partnerships, e.g., Tuscaloosa Steel
14. NCAA Increased Academic Standards for Student - Athletes
15. Increased Computational Resources
16. Changing Composition of Faculty
17. Federal Funds Decrease Dramatically
18. Change in Governance of Higher Education in Alabama
19. Continuing Studies Center Opens
20. Independent Elected as SGA President
21. Reallocation of Funds Internally
22. State Lottery Increases Education Funding
23. ACHE Eliminates Duplication of Programs
24. New Airport Between Tuscaloosa & Birmingham
25. Acquisition of Super-Computer
26. JVC Plant Opens
27. Non-Confirmation of Bd. of Trustees
28. Election of Political Leaders
29. Enhancement of Trade on Tennessee Tombigbee Devel. of Industry
30. Increase in Property Taxes
31. UAB Become a Member of SEC Sports (football, etc.)

32. UAB Builds Dorms
33. Loss to Auburn in Iron Bowl
34. Collapse of World Economy
35. Depletion of Natural Resources
36. Loss of Foreign/Out-of-State Students
37. Declaration of War
38. State Tax Base Changes
39. Decrease in Higher Education's Portion of Educational Trust Fund
40. Increased Academic Standards & Quality
41. Changes in Faculty Standards for Tenure, Appointment, etc.)
42. Incidence of International Terrorism
43. Nontraditional Certification of Teachers
44. Research Goal - Changes Sources of Funding, Faculty, & Students

Table 3: Trends Identified in Workshop Revised For Monitoring Purposes

1. Number of Manufacturing Industries in Alabama
2. Number of
   a. minority members in Alabama labor market
   b. unskilled workers in Alabama labor market
3. Number of Research Universities in Southeast
4. Number of Occupational Positions, by Occupation, by Sun Belt State
5. Number of Students with SAT Scores Above 1200
6. Number of Individuals Entering Education Programs with SAT Scores Above 1100, by Institution
7. Average Age of Entering Students

8a. Financial Support, by Federal, State, and Private Sources
8b. (Must specify more clearly, "shifting political strengths")

9. Number of Minority Students Enrolling Alabama Colleges and Universities
10. Number of Students Who Value 'Careerism'

11a. Number of labor intensive occupational positions in Alabama by type of occupation
11b. Number of service oriented occupational positions in Alabama by type of occupation

12. Amount of Financial Aid Available from Federal, State, and Private Sources

13a. Number of Students Over 25 Enrolling in Undergraduate Programs
13b. Number of Miniority Students Enrolling in Undergraduate Programs

14. Number of New Faculty Requiring Professional Job Opportunity for Spouse or Friend
15. Changing Roles of Urban Institutions (UAB & UAH) This is an event, not a trend
16. Number of Dual Earner Families (in Alabama; at UA)
17. Number of people in Southeast, by State
18. Number of cooperative relationships with industry
19. Number of Manufacturing/Heavy Industry Jobs in Alabama
20. Enrollment in Urban Universities, by State

21a. Number of Conservative Politicians
21b. Number of Conservative Ministers
21c. Number of Religious Fundamentalists

22. Alabama Community College/Technical School Enrollments
23. Number of UA Students Enrolled in Curricular Programs, by Curriculum
24. Regional Focus of Higher Education Service Units (Not a trend)
25. Proportion of UA Resources Committed to Teaching
26. Number of Faculty Members Needed in Selected Curricular Areas

27. Increasing Conflict Between and Among UA Divisions (need to define conflict to make this into a trend)
28. Number of Alabamans Retiring Back Home
29. Number of Female Graduate and Undergraduate Students
30. Number of Older Students Who Work
31. Number of Minorities in Higher Education, by Ethnic Identification
32. Number of Foreign Students Enrolling at UA (and/or in Southeastern Institutions of Higher Education)
33. Proportion of Students/Faculty Using Campus Exercise Facilities
34. Amount of UA Funding by Source (Federal, State, Private)
35. Number of "Pro-Higher Education" Politicians Elected to Alabama Legislature
36. "Blue Collar" Proportion of Alabama Population
37. Number of People in Alabama
38. Number of People in Neighboring States, by State
39. Minority Proportion of Alabama Population
40. Number of People in Tuscaloosa
41. Amount of Federal Funds for Student Aid
42.. Number of Out-of-State Students Enrolling at UA
43. Number of Students in Business Schools, by Selected Institution
44. Number of Women in Business Schools, by Selected Institution
45. (see 29)
46. Estimated Competition
    a. for students
    b. for financial support
47. Perceived Intrusion of Federal Courts in Higher Education
48. Perceived Movement of UA Toward General Education
49. Perceived Unrealistic Expectations of Faculty
50. Faculty
    a. average age
    b. proportion in rank
    c. proportion tenured
    d. proportion women
    e. proportion black
51. Perceived Intrusions on Educational Decisions Corresponding to Increasing Private Donation
52. Perceived "Developing Nation" Status of Counties Surrounding UA

53a. Energy Costs, by Type of Energy Consumed

53b. Cost of Economic Development (I am not sure how this is measured. It could be a subjective trend or an objective trend)

54. Number of Alabama
    a. low paying service jobs
    b. information processing jobs

55. Perceived Shortages of High School Science and Math Teachers
56. Perceived Demand for
    a. foreign language instruction
    b. English as a second language
57. High School Dropout Rate

58a. Number of (proportion of) Single Family Households

58b. Number of (proportion of) Female Head of Household

58c. Number of Children with Working Mothers

58d. Average Number of Children Per Household

59. Number of Millionaires in (Alabama, Southeast)
60. Average Faculty Salary, by Rank, by Selected Institution
61. Average Income, by Southeastern State
62. Perceived Emphasis on Graduate Programs
    a: number of assistantships
    b: perceived recruitment efforts
    c: average stipend
63. Tuition, by Institution, by Comparable Institution
64. Computer Laboratory Fees
65. UA Enrollment
66a. Perceived Inflationary Pressures
66b. Inflation rate, by Southeastern State

Table 4: Revised Event Statements

1a. Pro-Higher Education Governor Elected
2b. Anti-Higher Education Governor Elected
2. State Appropriations for 85-86 Reduced 15%
3. State Appropriations for 86-87 20% < 85-86
4. Title VI Decision
   a: mergers (specify institutions)
   b: specifies education doctoral program; new MBA grad. programs in (specify) traditional black institution
   c: shift programs from one institution (specify) to another institution (specify)
5. Moratorium on New Programs
6. Enhancement of College of Continuing Studies Facilities
7. New UA Building Program
   a: Music
   b: Min. Sci.
   c: Bidgood addition
   d: Hotel
   e: Bryant Museum
8. In-Service School District Programs Can Certify New Teachers
9. UA Admission Standards Require SAT Score of 950. (?)
10. More Stringent Academic Progress Standards (specify)
11. Strengthening of Core Curriculum (specify)
12. New Accreditation Standards (specify)
   a: Nursing
   b: C&BA (changing)
   c: Engineering (changing)
13. Univ. Industrial Partnerships, e.g., Tuscaloosa Steel
14. NCAA Increased Academic Standards for Student - Athletes (specify)
15. Personal computer available to all faculty members
16. 95% of Faculty is Tenured
17a. Federal Funds for Research and Development Decrease 40% by 1990
17b. Federal Funds for Student Aid Decrease 70% by 1990
18. Alabama Board of Higher Education Created in 1990
19. Continuing Studies Center Opens in (specify)
20. Independent Elected as UA SGA President
21. Re-allocation of Funds Internally (specify)
22. State Lottery Increases Education Funding
23. ACHE Eliminates Duplication of Programs by 1990
24. New Airport Between Tuscaloosa & Birmingham Funded in 1990

25. Acquisition of Super-Computer in 1987
26. JVC Plant Opens (specify when)
27. Non-Confirmation of Board of Trustees (specify when)
28. Election of Political Leaders (not specific enough--see I above)
29. Enhancement of Trade on Tennessee Tombigbee Development of Industry (be more specific)
30. Property Taxes Increased 20%
31. UAB Becomes a Member of the SEC
32. 50% UAB Students in Residence Halls by 1992
33. Loss to Auburn in 1986 Iron Bowl
34. Collapse of World Economy in 1988
35. Depletion of Natural Resources (be more specific)
36. Number of Foreign/Out-of-State Students Declines by 35% Between 1986 and 1988.
37. Declaration of War (need to specify type of war--nuclear or nonnuclear--and between whom)
38. State Tax Base Changes (specify)
39. Higher Education's Portion of Educational Trust Fund Decreased by 40% in l990
40. To be Promoted to Full Professor, Individual Must be in Top 1% of His/Her Field Nationally
41. To Receive Tenure, Individual Must be in Top 10% of His/Her Field Nationally
42. International Terrorists Kill 15 Mid-East Students in Residence Halls
43. Nontraditional Certification of Teachers (see 8 above)

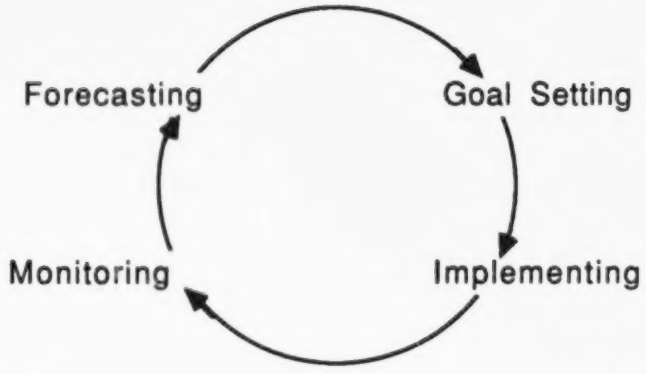

Figure 1: Long-Range Planning Model

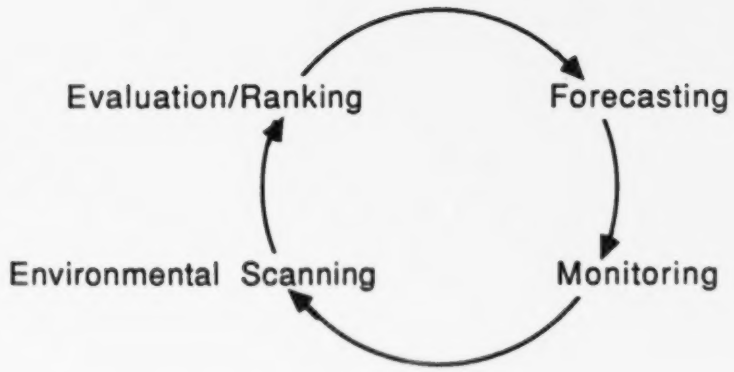

Figure 2: Environmental Scanning Model

NOTES

1. The SCAN taxonomy serves to:

o indicate the parameters of active scanning of trends, issues, and events which are of major concern in strategic planning for the Georgia Center;
o organize the SCAN hardcopy files (abstracts and original references submitted by scanners);
o organize SCAN input for computer storage and retrieval by taxonomy codes and cross-reference codes.

2. The taxonomy is a dynamic scanning aid. It will change as necessary to better serve strategic planning. This first draft is modeled after the United Way taxonomy with numerous additions/deletions to better reflect the Georgia Center.

3. "Related Subjects" are not all-inclusive. Scanners should submit abstracts on any subject that has significant implications for the Georgia Center.

4. The taxonomy should guide active scanning of all continuing resources (print and media).

FILE	FILE NAME	RELATED SUBJECTS
F-FUTURE		
F-1	FORECAST SUMMARIES 1980s to 2000	FORECASTS OF CHANGES TO COME 1980s to 2000 (inc. social, economic, political, technological, "Information Age," "Learning Society," etc.) F11
F-2	FORECAST SUMMARIES 2000 and beyond	FORECASTS OF CHANGES TO COME (2000 and beyond) F21
F-3	FUTURES STUDY/RESEARCH	TECHNIQUES OF FUTURES STUDY (include environmental scanning, forecasting, issues management, strategic planning, Delphi, scenario dev., etc.) F31 HISTORY/PHILOSOPHY OF FUTURES STUDY F32 RELATIONSHIPS: PAST, PRESENT, AND FUTURE F33

FILE	FILE NAME	RELATED SUBJECTS
S-SOCIAL		
S-1	U.S. POPULATION SIZE/ COMPOSITION/MOBILITY	U.S. POPULATION GROWTH/SIZE (include projections) S11 AGING POPULATION/ELDERLY S12 BABY-BOOMERS S13 YOUNG ADULTS S14 AGE DISTRIBUTION S15 ETHNIC DISTRIBUTION S16 REGIONAL MIGRATION S17 IMMIGRATION TO U.S., esp. southeast S18
S-2	DEMOGRAPHIC OVERVIEWS	OVERVIEWS OF VITAL AND SOCIAL STATISTICS OF POPULATIONS and the effect on social and economic conditions.
S-3	VALUES AND ATTITUDES	NATIONAL "MOOD" (pos./neg., confidence in institutions, readiness for change, etc.) S31 ATTITUDES ON MAJOR ISSUES S32 AMERICAN VALUE SYSTEMS (include liberal, conservative, religious, humanistic, family, work, litigation, leisure, etc.) S33 GENERATIONAL VALUES S34 SOCIAL TRANSFORMATION S35 SOCIAL MOVEMENTS (include peace, environmental, women's, minorities, human rights) S36
S-4	LIFESTYLES	AGE GROUPS (include young adults, older adults, elderly) S41 SOCIOECONOMIC DIFFERENTIATIONS (include white collar, white-[illegible], professional, adult students, academic, etc.) S42 ALTERNATIVE LIFE STYLES (singles, families, working couples, single-parents, etc.) S43

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FILE	FILE NAME	RELATED SUBJECTS
S-5	U.S. EDUCATION	PUBLIC SUPPORT FOR EDUCATION, esp. public opinion polls (2)
S-5C	CA EDUCATION (Global Concerns)	EDUCATIONAL QUALITY (Include reports of various national studies) (3)
		LITERACY/ILLITERACY (4)
		======= COMPUTER LITERACY/see T3
		======= COMPUTERS IN EDUCATION/see T3
		ALTERNATIVE/EXPERIMENTAL TEACHING AND LEARNING MODELS (5)
S-6	EDUCATION, LIFELONG	LIFELONG LEARNING/EDUCATION, as a concept S61
		PRE-SCHOOL EDUCATION S62
		ELEMENTARY EDUCATION S63
		HIGH SCHOOL EDUCATION S64
		VOCATIONAL EDUCATION S65
		======= HIGHER EDUCATION /see S-7
		======= CONTINUING EDUCATION/see S-8
		ON-THE-JOB EDUCATION (Include corporate/business programs) S66
		PROFESSIONAL ASSOCIATIONS S67
		SELF-DIRECTED/SELF-PACED EDUCATION S68
		OTHER/ALTERNATIVE LIFELONG LEARNING OPTIONS S69
S-7	HIGHER EDUCATION, U.S.	GOVERNANCE (1)
S-G7	GA. HIGHER EDUCATION	LEGISLATIVE ISSUES (2)
S-UG7	UNIVERSITY OF GEORGIA	STATE MODELS (Include University System of Georgia) (3)
		STRATEGIC PLANNING (4)
		ALUMNI SUPPORT (5)
		PERSONNEL ISSUES (6)
		FINANCIAL ISSUES (7)
		ADMINISTRATIVE ISSUES (8)
		STUDENT ISSUES (9)
		TEACHING/CURRICULA ISSUES (10)
		RESEARCH ISSUES (11)
		=======Include Biotechnology/seeT-7
		PUBLIC SERVICE ISSUES (12)
		TECHNOLOGY ISSUES (13)
		OTHER ISSUES (Include athletics, church-state) (14)
		LAND GRANT CONCEPT (15)
		ENROLLMENT TRENDS (16)
		RELATIONSHIPS (Include private sector, other universities, Federal govt., states) (17)
		GRANTS/CONTRACTS (18)
		ALTERNATIVE FUTURES (19)

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FILE	FILE NAME	RELATED SU...
S-8	HIGHER CONTINUING AND ADULT EDUCATION, U.S.	GOVERNANCE ISSUES (1)
S-GC	GA. HIGHER CONTINUING AND ADULT EDUCATION	LEGISLATIVE ISSUES (2)
		ALTERNATIVE MODELS (3)
		STRATEGIC PLANNING (4)
		PROFESSIONAL ISSUES (5)
		THEORETICAL ISSUES (6)
		PRACTICAL ISSUES (7)
		PERSONNEL ISSUES (8)
		FINANCIAL ISSUES (9)
		ADMINISTRATIVE ISSUES (10)
		STUDENT ISSUES (11)
		NON-CREDIT TEACHING/CURRICULA ISSUES (12)
		CREDIT TEACHING/CURRICULA ISSUES (13)
Ga. Center/Kellogg Programs		PROGRAM DEVELOPMENT ISSUES (14)
		TECHNOLOGY ISSUES (15)
Adult Counseling (141)		DELIVERY SYSTEMS (16)
American Language Program/ English as a 2nd language (142)		RESIDENTIAL CONFERENCE CENTERS (17)
Arts and Sciences (143)		RELATIONSHIPS (Include private sector, states, Federal govt., international concerns) (18)
Business Education (144)		GRANTS/CONTRACTS FUNDING (19)
Certificate Programs (145)		ALTERNATIVE FUTURES (20)
Continuing Education for the Professions (146)		
Disaster Preparedness (147)		
Energy Education (148)		
Evening Classes (149)		
Forestry (150)		
Gerontology (151)		
Governmental Training (152)		
Health (153)		
Home Economics (154)		
Independent Study (155)		
Music (156)		
Pharmaceutical Svcs. (157)		
Recreation/Leisure (158)		
Self-directed, self-paced learning (159)		
Social Work Cont. Ed. (160)		
Veterinary Medicine (161)		
S-9	PHILANTHROPY	LEVELS/PATTERNS OF GIVING IN HIGHER EDUCATION (limit to corporations and private foundations) S91
		PRIVATE-PUBLIC COOPERATION S92
		BUSINESS VENTURES BY NON-PROFIT ORGANIZATIONS S93
		VOLUNTARISM S94
		ETHICS IN GRANTMAKING AND GRANTSEEKING, esp. as affect educational transactions S95

E-ECONOMIC		
E-1	U.S. ECONOMIC GROWTH AND DECLINE	FORECASTS OF ECONOMIC GROWTH AND DECLINE IN U.S. AND GEORGIA (1) ECONOMIC STRUCTURAL CHANGE (2)
E-1G	GA.ECONOMIC GROWTH AND DECLINE	
E-2	GLOBAL ECONOMY	FORECASTS OF GLOBAL ECONOMY (1) FOREIGN TECHNOLOGY (2)
E-3	U.S. INDUSTRIAL DEVELOPMENT/ BUSINESS GROWTH	GROWTH AND DECLINE (1) BUSINESS/INDUSTRIAL FUTURES (2)
E-3G	GA. INDUSTRIAL DEVELOPMENT/ BUSINESS GROWTH	NEW BUSINESSES/ENTREPRENEURISM(3) MINORITY BUSINESSES (4) AGRICULTURAL GROWTH/DECLINE
E-4	U.S. EMPLOYMENT/LABOR FORCE	LABOR FORCE COMPOSITION (include aging, minorities, women) (1) AAFFIRMATIVE ACTION/EEO (2) FAIR LABOR LAWS esp. as applied to educational and governmental entitites (3)
E-4G	GA. EMPLOYMENT/LABOR FORCE	
E-5	U.S. UNEMPLOYMENT	UNEMPLOYMENT FORECASTS (1) INNOVATIVE SOLUTIONS (2) JOB TRAINING/RETRAINING (3)
E-5G	GA. UNEMPLOYMENT	
E-6	WOMEN/EMPLOYMENT AND INCOME	WOMEN IN LABOR FORCE E61 PAY EQUITY/PENSIONS E62 WOMEN'S INCOME/EARNINGS E63 JOB OUTLOOK FOR WOMEN E64
E-7	OCCUPATIONS	OCCUPATIONAL OUTLOOK E71 EMERGING OCCUPATIONS E72
E-8	CHANGING WORKPLACE/ WORK FORCE	CHANGING WORLD OF WORK (include changing employee attitudes, work ethic, baby boom workers, workplace of the future) E81 ALTERNATIVE WORK SCHEDULES (include flextime, job sharing, parttime) E82 ALTERNATIVE WORK ARRANGEMENTS (include employee leasing, job shopping, temp. employment, work at home) E83 WORKER PARTICIPATION E84 NEW MANAGEMENT STYLES E85
E-9	CONSUMERISM	CONSUMER RIGHTS, EDUCATION, MOVEMENTS E92 CONSUMER PROFILES (inc. baby boomers, young adult, middle aged, young-old/retired) E94 MARKETING STRATEGIES, esp. of education programs/products E95
E-10	RESOURCES/ENVIRONMENT	ENERGY E101 WATER E102 AGRICULTURAL/FOREST RESOURCES E103 ENVIRONMENTAL POLLUTION E104 WORK ENVIRONMENT E105

P-POLITICAL		
P-1	WHITE HOUSE	POLICIES/INITIATIVES, esp. as affect education P11
P-1G	GA. GOVERNOR'S OFFICE	
P-2	CONGRESS	LEGISLATION/INITIATIVES, esp. as affect education P21
P-2G	STATE LEGISLATURE	
P-3	SUPREME COURT/U.S. DISTRICT COURTS	CASES/DECISIONS esp. relevant to education P31
P-3G	GA. STATE/LOCAL COURTS	
P-4	ELECTORATE (AT LARGE)	OPINION POLLS (citizen opinion and reaction to major political issues) P41 POLITICAL PARTICIPATION P42 POLITICAL CONSERVATISM/ LIBERALISM P43 BABY BOOM POLIT. INFLUENCE P44 AGING POPULATION INFLUENCE P45
P-4G	GA. ELECTORATE	
P-5	U.S. GOVT. REVENUES	TAXES P51 TAX REFORM P52
P-5G	GA. STATE/LOCAL REVENUES	
P-6	U.S. GOVT. EXPENDITURES	EXPENDITURES/DEFICIT/SURPLUS (esp. as affects education) P61 HUMAN SERVICE EXPENDITURES P62 GRANTS/CONTRACTS (education) P63
P-6G	STATE/LOCAL GOVT. EXPENDITURES	
P-7	NEW FEDERALISM	FEDERAL BLOCK GRANTS P71 PRIVATE SECTOR INITIATIVES P72 FEDERAL SOCIAL POLICY/NEW P73 FEDERALISM P74
P-8	GOVERNMENT REGULATION	GOVERNMENT REGULATION, esp. as affects education) P81
P-9	LITIGATION	LITIGATION, esp. as affects education P91

T-TECHNOLOGY (OVER)

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FILE	FILE NAME	RELATED SUBJECTS
T-TECHNOLOGICAL		
T-1	TECHNOLOGICAL OVERVIEWS	TECHNOLOGICAL OVERVIEWS T11 HUMAN IMPACT OF TECHNOLOGY (include Naisbitt's "high touch" concerns) T12 HIGH TECH FUTURES T13
T-2	HIGH TECH WORKPLACE/ WORKFORCE	WORKFORCE SIZE/COMPOSITION T21 HIGH TECH WORKPLACE T22 HIGH TECH JOBS T23 EDUCATION FOR HIGH TECH (esp. overviews) T24
T-3	COMPUTERS	COMPUTER LITERACY T31 USAGE IN SECONDARY EDUCATION T32 USAGE IN POST-SECONDARY EDUCATION (include continuing education delivery systems) T33 USAGE IN VOCATIONAL TRAINING/ EDUCATION T34 USAGE IN BUSINESS/CORPORATE EDUCATION/TRAINING T35 USAGE IN ENTREPRENEURIAL EDUCATION/TRAINING T36 USAGE IN SELF-DIRECTED, SELF-PACED EDUCATION/TRAINING T37 ELECTRONIC INFORMATION DISTRIBUTION (inc. videotex, banking & shopping at home, databases, networking, electronic meetings, etc.) T38 xxxxxx INTERACTIVE VIDEO/code to T-5 ARTIFICIAL INTELLIGENCE T39
T-4	TELECOMMUNICATIONS	TV (inc. satellites, cable, direct broadcast) T41 TELEPHONES (include mobile phones, video phones) T42
T-5	INTERACTIVE VIDEO TECHNOLOGY	DEVELOPMENT (inc. pitfalls and advances, [illegible]) T51 USAGE, esp. in educational settings) T52
T-6	AUTOMATION/ROBOTICS	AUTOMATION, esp. in education and office settings T61 ROBOTS T62
T-7 T-7C	BIOTECHNOLOGY/GENERAL CA. BIOTECHNOLOGY	BIOTECHNOLOGY OVERVIEWS (written for the layman) T71 DEVELOPMENT "INTERFACING" (inc. academic, business/industry, government) T72 MODEL PROJECTS (inc. UCA biotechnology effort) T73 BIOTECHNOLOGY FUTURES (anticipated breakthroughs, economic impact, etc.) T74

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